WINTER/SPRING FLOOD POTENTIAL OUTLOOK
NATIONAL WEATHER SERVICE GREENVILLE-SPARTANBURG SC
Issued Tuesday, January 23, 2018

...The second Winter/Spring Flood Potential Outlook for 2018 has analyzed a decrease in mainstem river flood potential to WELL-BELOW NORMAL for the Carolina Piedmont and a slight increase in flood potential ranging from SLIGHTLY BELOW NORMAL to SLIGHTLY ABOVE NORMAL for the Foothills and mountains of the western Carolinas and northeast Georgia...

ABOUT THIS PRODUCT...

Every two weeks from January through mid-March, NWS Greenville-Spartanburg (GSP) issues a Flood Potential Outlook for the entire service area (see county-to-region legend at the end of this outlook for a list of counties serviced by NWS GSP). These outlooks forecast the potential for runoff, small stream, and mainstem river flooding through late April, or the end of the winter recharge season. The outlook is prepared based on an assessment of several hydrometeorological factors, including recent and forecasted precipitation and observed soil moisture, groundwater levels, streamflows, reservoir levels, and recent flooding events.

This product and an archive of past Flood Potential Outlooks is also located at:

http://weather.gov/gsp/floodoutlook

For additional hydrological and meteorological information please visit:

http://weather.gov/gsp/hydro

CLIMATOLOGY and SEASON to DATE...

The mainstem river flood season typically begins in late December. The quantity, frequency, magnitude, and significance of river flood events often increases through late winter with a peak in early to mid-March. While the mainstem river flood season typically ends by late April for the region, small-stream flash flooding can occur year-round.

This season, the mainstem flood season began prematurely in October across the western North Carolina mountains; however, a dry fall and early winter has resulted in the development of drought conditions across the Piedmont. To date, January has featured only one significant rainfall event for the region, which resulted in additional minor flooding across the southern North Carolina mountains yet brought only modest and temporary relief to the Piedmont dryness. Therefore, January precipitation has generally reinforced the pattern of near-normal antecedent conditions across the mountains and abnormally dry to moderate drought conditions across the Foothills and Piedmont observed since late summer.

Therefore, the overall flood outlook for winter/spring 2018 has changed little with generally near-normal chances across the mountains becoming below-normal heading east into the Piedmont.

14-DAY OBSERVED PRECIPITATION and FLOODING...

REGION	OBSERVED PRECIP (in)	% OF NORMAL	MAINSTEM FLOODING	SMALL STREAM FLOODING
NC Piedmont NC Foothills NC Nrn Mnts NC Cntl Mnts NC Srn Mnts	0.75-2.25 1.00-4.00 1.25-6.00 1.00-5.00 1.00-7.00	50-175 50-175 75-300 25-200 25-300	None None NA None Iso. Minor	None None None Sct. Minor
SC Mnts SC Foothills SC Piedmont GA NE Mnts/ Foothills GA Piedmont	3.00-5.00 1.50-4.50 1.00-2.50 2.50-5.00 1.75-3.00		NA None None None	None None None None

SNOW DEPTH and FORECAST...

REG	GION	SNOW DEPTH (in)	SNOW WATER EQUIVALENT (in)	7-DAY SNOWFALL FORECAST (1/23-1/30) (in)
NC	Piedmont	None	None	None
NC	Foothills	None	None	None
NC	Nrn Mnts	None	None	0-1

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NC Cntl Mnts NC Srn Mnts			0-1 None	
SC Mnts SC Foothills SC Piedmont	None	None	None	
GA NE Mnts/ Foothills	None	None	None	
GA Piedmont	None	None	None	
1-10 DAY FUTU	RE PRECIPITA	TION FORECA	AST and FLOOD	POTENTIAL
REGION	PRECIP	NORMAL	MAINSTEM FLOOD PTNTL (1/23-2/2)	FLOOD PINTL
NC Piedmont NC Foothills NC Nrn Mnts NC Cntl Mnts NC Srn Mnts	1.50-3.00 1.00-2.50 0.75-3.00	95-125 60-140 30-170	Zero NA Near Zero	Slight Zero Near Zero
SC Mnts SC Foothills SC Piedmont	2.00-3.00	110-120	Zero	Near Zero
GA NE Mnts/ Foothills	1.50-3.00	60- 95	Zero	Near Zero
GA Piedmont	0.75-2.00	50- 80	Zero	Zero
DEFINITIONS:				
Flood Potentia Categories:	Near Zo Slight Modera Likely	ero = Ven	attered Minor t-Widespread N o Moderate Flo	ootential Flooding Possible Flooding Possible Minor Flooding Likely
8-90 DAY PREC	========= IPITATION OU'			

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REGION	8-14 DAY PRECIP OUTLOOK (1/31-2/6)	15-28 DAY PRECIP OUTLOOK (2/7-2/21)	LATE FEB-MAR 2018 PRECIP OUTLOOK
	Near Normal Near Normal	Near Normal Near Normal Near Normal Near Normal Slghtly Abv Nrml	Near Normal Near Normal Near Normal
SC Mnts SC Foothills SC Piedmont GA NE Mnts/	Near Normal	Near Normal Near Normal Slghtly Blw Nrml	Near Normal
Foothills GA Piedmont	Slghtly Blw Nrml	Slghtly Blw Nrml	Slghtly Blw Nrml
HYDROLOGIC SU			

..IMPORTANT NOTES...

..IMPORTANT NOTES...

It is very important to note that flash flooding and flooding of smaller tributaries is still very possible during periods of dry weather and/or drought. Several important and damaging flash floods were observed during previous drought periods. Residents are strongly encouraged to heed related flood advisories and warnings, even during significant drought.

The winter and early spring months are a critical time for the water system as widespread winter precipitation normally restores streamflows and reservoir levels following the spotty, convective nature of precipitation during the summer and the drier weeks of early fall. This recharge of the water system is critical for adequate water supply heading into the late spring and summer of 2018. When the winter begins in a significant drought, it takes a greater amount of precipitation to adequately complete this recharge.

..SOIL and CROP MOISTURE...

----- SOIL/CROP MOISTURE ESTIMATES ------

1/19 1/19 12/30
TOTAL^ COLUMN SOIL CHANGE SHORT-TERM
SOIL MOISTURE MOISTURE FROM CROP MOISTURE
ANOMALY %ile~ Dec 31 INDEX*

REGION	(mm)	(%)	(mm)				
NC Piedmont NC Foothills NC Nrn Mnts NC Cntl Mnts NC Srn Mnts	- 25 to - 75 + 50 to - 25 + 25 to - 25 + 25 to - 25 + 25 to + 50	30-70 30-70 30-50	+25 to -2 -2	50 -1 - +1, 0 +1 - +2, 25 +1 - +2, 25 +1 - +2, 25 +1 - +2,	SAN SAN SAN		
SC Mnts/ Foothills	0 to - 25	30-70	+2	25 +1 - +2,	SAN		
SC Piedmont	- 40 to -100	5-30	0 to -2	20 -1 - +1,	Near Nrml		
GA NE Mnts/ Foothills	- 25 to - 50	20-50	+25 to	0 -1 - +1,	Near Nrml		
GA Piedmont	- 25 to - 50	20-50	0 to -2	25 -1 - +1,	Near Nrml		
DEFINITIONS:							
EVAPOTRANSPIR	-		the loss	m the soil to of moisture			
	soil moist below-norm precipitat However, l temperatu reduce der important	ture thromal temperation mitical interesting interesting in the effect of the second s	ugh evapot ratures and gates soil at a soil at	exacerbate the transpiration and above-normal-moisture defined and winter, one or dormant system and woove-normal the transport of transport of the transport of tra	n, while mal eficits. cooler vegetation while still temperatures		
*CROP MOISTUR	impacting dryness, was 1-6 months wetness of	agricult while pos is not a s) to lond r drought	ure. Nega itive valu depicter g-range (i	th) dryness of ative values ues indicate of medium-rai.e., >6 mont	<pre>indicate wetness. ange (i.e.,</pre>		
	SAN = Slic	ghtly Abo	ve Normal				
^TOTAL COLUMN	from the I System (NI between th Prediction	= Defined as a 2-meter depth (6.56ft) and derived from the North American Land Data Assimilation System (NLDAS) which is a joint modeling effort between the National Centers for Environmental Prediction and the National Aeronautics and Space Administration.					
~PERCENTILES	percentile	es, with	above-norm	re within the mal or wet co ry conditions	onditions		

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..GROUNDWATER*...

 	_	_	_	_	_	_	_	_	_	_	_	_	_	_	

 - GROU	JNDWATE	ER WELL	MEASUREN	TNA	'S	
 Depth	Below	Ground	Surface	in	Feet	

COUNTY	LOCATION	DEPTH* 1/22 1 (ft)	JAN** MEDIAN (ft)	CHANGE*7 SINCE 1/4 (ft)	**RECORD LOWEST LEVEL (ft)	and DATE
Caldwell Catawba Gaston McDowell Union (NC) York	Granite Falls Oxford Resrch St Pasour Mtn Pleasant Gardens Mineral Springs York Co Airport	45.43 28.10 39.21	39.40 38.60 28.46 39.11	+0.09 -0.31 -0.11 -0.14	42.09, 45.43, 31.89, 42.70,	03/23/17 01/14/13 01/22/18 11/29/10 01/10/13 12/13/12
COUNTY	LOCATION	DEPTH* 1/22 (ft)	CHANGE* SINCE 1/4 (ft)	%ile ****	RECORD LOWEST LEVEL I (ft)	and DATE
Anderson Burke Cherokee Chester Davie Haywood Iredell Oconee Rowan Spartanburg Transylvania Transylvania White	Williamston Glen Alpine Marble Leeds Road Mocksville near Cruso Langtree Oconee Statn Rd Barber Croft State Park Blantyre Pisgah Forest Unicoi State Pk	30.50	-0.41 +0.41 +0.21 +0.02 -0.43 -0.03 -0.20 -0.18 +0.10 -0.31	50-75 <10th 25-50 10-25 50-75 < 1st 25-50 50-75 25-50	13.84, 15.16, 94.52, 23.32, 6.96, 33.03, 32.08, 11.15, 51.69, 42.19,	06/25/02 09/04/11 11/28/16 01/12/14 08/24/02 09/12/02 11/02/17 12/31/08 09/14/02 03/17/13 12/12/08 08/25/08 09/28/98

DEFINITIONS:

- * DEPTH = Note that groundwater is measured as depth below the surface, unlike streamflow and reservoir data which is the reverse or height above the surface. Therefore, the higher the depth value, the less the groundwater supply because the groundwater level is further from the surface.
- **MEDIAN = Current depth values that are larger than the monthly median can be loosely correlated to drier-than-normal conditions while current depth values that are smaller than the monthly median can be loosely correlated to wetter-than-normal conditions.
- ***CHANGE = A POSITIVE CHANGE means the groundwater depth has increased or is further from the surface. Therefore, a NEGATIVE CHANGE means the groundwater depth has

decreased or is closer to the surface. In periods of drought, negative changes are ideal. However, positive changes are NORMAL during the late summer and early fall, as rainfall is typically isolated to scattered and less significant, causing losses to surface and subsurface water sources due to increased evapotranspiration, evaporation, and increased consumption, while negative changes are NORMAL during the late fall and winter, as widespread significant precipitation recharges surface and subsurface water sources and environmental demands are lower.

Note, however, that for many groundwater sites, the depth of the wells are very deep and there is a lag between significant rainfall and deep infiltration into subsurface water supplies. If the rainfall is not significant or occurring over a sustained period of time, the water may never reach the groundwater wells. Additionally, if the rainfall is significant but occurring quickly and only once during a period of several weeks, a shallower groundwater well may spike and then return to near pre-rainfall levels.

****PERCENTILE = The percentile (%ile) values can be interpreted as follows:

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Less than 10th percentile - Well-Below Normal
10th-25th percentile - Below Normal
25th-50th percentile - Slightly Below Normal/Near Normal
50th-75th percentile - Slightly Above Normal/Near Normal
75th-90th percentile - Above Normal
Greater than 90th percentile - Well-Above Normal
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The percentile values are computed monthly. Therefore, percentiles referenced in the chart above are for the month of January. Groundwater well statistics change throughout the water year such that the median monthly depth typically reaches a minimum in autumn and a peak in late spring. This can result in a dramatic change in the percentile of an observed depth from one month to the next, even if the observed depth does not change significantly.

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..STREAMFLOW*...
______
----- 28-DAY AVERAGE USGS STREAMFLOW PERCENTILES BY REGION ------
______
          % OF %ILE %ILE CLASSIFICATION NORMAL
REGION
           (1/22) (1/4) (1/22) (1/22)
NC Piedmont 8-79 | 7-30 | 1-42 | Below Normal NC Foothills 55-142 | 7-37 | 19-83 | Slightly-Above Normal
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NC Nrn Mnts 140-180 | 13-31 | 84-92 | Above Normal
NC Cntl Mnts 38-187 | 10-52 | 7-91 | Slightly-Below Normal NC Srn Mnts 57-137 | 8-37 | 15-82 | Slightly-Above Normal
SC Mnts/ 38-104 | 7-25 | 4-59 | Below Normal
  Foothills
SC Piedmont 4-50 | 9-32 | 2-23 | Well-Below Normal
GA NE Mnts/ 53-104 | 12-29 | 13-59 | Slightly-Below Normal
  Foothills
GA Piedmont 43-44 | 9-18 | 11-20 | Below Normal
______
---- 28-DAY AVERAGE USGS STREAMFLOW PERCENTILES BY RIVER SYSTEM ----
                           % OF %ILE %ILE CLASSIFICATION
RIVER BASIN
                        NORMAL
                          (1/22) (1/4) (1/22) (1/22)
                        43- 44 | 9-16 | 11-13 | Below Normal
Broad (GA)
Broad (NC/SC)/Pacolet 26-103 | 7-37 | 9-57 | Below Normal
Catawba 8-142 | 4-37 | 1-83 | Slight Abv Nrml (Upr)/
                                                     Well-Below Normal (Lwr)
Enoree/Tyger 29-60 | 10-32 | 3-22 | Slightly Below Normal French Broad 92-137 | 18-66 | 54-82 | Slightly Above Normal
Nantahala/Tuckasegee/ 57- 84 | 8-29 | 15-41 | Slightly Below Normal
Little Tennessee
Pigeon
                        76-187 | 10-46 | 40-91 | Above Normal

      Pigeon
      76-187 | 10-46 | 40-91 | Above Normal

      Rocky/Yadkin
      13-115 | 6-40 | 6-65 | Below Normal

      Reedy/Saluda
      30-80 | 9-34 | 3-43 | Below Normal

      Tallulah/Chattooga
      64-104 | 12-29 | 19-59 | Slightly Below Normal

      Toxaway/Keowee/
      31-60 | 10-20 | 3-20 | Below Normal

Savannah
DEFINITIONS...
*RESERVOIR = Please note that streamflows along regulated rivers
             (i.e., rivers with reservoirs) may be influenced
               positively and/or negatively by the control of releases
               from those reservoirs. For a list of mainstem rivers
               and their regulation influence, please see the bottom
               of this product.
_____
..RESERVOIRS...
----- POOL ELEVATIONS and DROUGHT STAGES ------
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DEFINITIONS...

2018 Winter/Spring Flood Outlook #2

RESERVOIR	NWS ID	AVG* ELEV 1/22 (ft)	AVG ELEV 1/4 (ft)	TARGET ELEV 1/22 (ft)	1/22 ELEV- TARGET (ft)	1/22 1/22 MIN DGT ELEV* STGE (ft)
BROAD SYSTEM						
Summit Gaston Shoals Ninety-Nine Is	(None) (BLAS1) 31 (NNIS1)			97.5 NA NA	-0.20 NA NA	85.0 NA 98.0 NA 98.0 NA
CATAWBA SYSTEM	I (As of 1	l/2, Total	Reservo	ir Stora	ge 112% c	of Target)
James Rhodhiss Hickory Lookout Shoals Norman Mountain Islan Wylie Fishing Creek Great Falls Cedar Creek	(CWAN7)	97.09 97.76 96.93 96.79 97.10 97.34 98.31 97.64	96.36 97.03 96.15 96.60 97.15 97.55 98.02 97.85	97.0 96.0 97.0 94.6 96.0 97.0 98.0 97.5	+2.56 +0.09 +1.76 -0.07 +2.20 +1.10 +0.34 +0.31 +0.14 +0.11	94.0 0 94.0 0 94.0 0 94.0 0 91.6 0 94.3 0 94.0 0 95.0 0
NANTAHALA/LITTLE TENNESSEE/TUCKASEGEE SYSTEM						
Tanasee Creek Wolf Creek Bear Creek Cedar Cliff Glenville Nantahala Queens Creek Fontana	(EFKN7) (WCDN7) (BCDN7) (ICCN7) (THPN7) (NANN7) (QCDN7) (FONN7)	86.35 86.58 92.98 97.87 90.80 77.65 88.35 1650.44	84.85 95.13 98.20 87.36 77.29 89.27	85.0 93.0 98.0 90.0 81.7 86.8	+1.55	83.0 ND 91.0 ND 96.0 0 85.0 ND
SAVANNAH SYSTE	M (As of	1/2, Tota	l Reserv	oir Stor	age 74% c	of Target)
Jocassee Keowee Hartwell Russell	(JCSS1) (KEOS1) (HRTG1) (RBDS1)		98.25 650.90		NA -5.56	77.0 2 94.6 2 625.0 2 470.0 2
PROJECTIONS						
LAKE HARTWELL.	hold stellevation mid-Marin the at a since summer.	teady over ton is pro rch, but t storage of imilar rat	the nexpjected there will be in ord	t two more o increased only be sthe guster to bus	nths, the se 1-3 fe e a sligh ide curve ild stora	e pool eet through nt decrease e increases age for
FONTANA LAKE						curve 11 occurs.

*AVG ELEV = Reporting the daily average elevation factors in the fluctuations in pool elevation due to scheduled discharges and/or power generation.

MINIMUM ELEVATION

= The minimal elevation is the lowest elevation that the pool can be while meeting local community and river system needs. Drought release reduction plans may begin above the minimal elevation. For Lake Hartwell and Richard B. Russell Lake, the minimal elevation marks the bottom of conservation storage or the top of the inactive pool. Drought release reduction plans begin at or above the minimal elevation, at 656.0 feet at Lake Hartwell and at 470.0 feet for Richard B.

Russell Lake.

ND = No Drought
NA = Not Applicable

LONG-TERM FLOOD OUTLOOK...

Therefore, given current antecedent conditions and long-range precipitation guidance, the long-term flood outlook through the end of April 2018 is as follows...

REGION	RUNOFF POTENTIAL		SMALL STREAMS FLOOD POTENTIAL		MAINSTEM RIVERS FLOOD POTENTIAL
NC Piedmont NC Foothills NC Nrn Mnts NC Cntl Mnts NC Srn Mnts	Below Normal Near Normal Near Normal Near Normal		Below Normal Near Normal Near Normal Near Normal Slight Abv Nrml		Well-Below Normal Near Normal NO MAINSTEMS Near Normal Slightly-Above Nrml
SC Mnts SC Foothills SC Piedmont	Near Normal Near Normal Below Normal		Near Normal Slight Blw Nrml Below Normal		NO MAINSTEMS Slightly-Below Nrml Well-Below Normal
GA NE Mnts/ Foothills GA Piedmont	Near Normal Slight Blw Nrml		Near Normal	1	Slightly-Below Nrml Below Normal

ACKNOWLEDGMENTS...

The precipitation analysis is derived from quality-controlled gridded precipitation estimates produced at the Lower Mississippi River Forecast Center (LMRFC) and the Southeast River Forecast Center (SERFC).

The 1-10 day future precipitation is derived from guidance produced by NWS Greenville-Spartanburg.

The long-term precipitation outlooks are derived from guidance produced at the Climate Prediction Center (CPC).

Streamflow information is courtesy of the United States Geological Survey (USGS).

Reservoir information is courtesy of Duke Energy...Georgia Power... and the US Army Corps of Engineers (USACE).

The mainstem rivers flood outlook is produced in collaboration with the LMRFC and the SERFC.

_____ NEXT ISSUANCE DATE...

The second flood outlook should be issued by: Friday, February 2nd, 2018.

ADDITIONAL RESOURCES...

For the latest LEVELS of streams and mainstem rivers across the region please visit and bookmark:

http://water.weather.gov/ahps2/ area.php?wfo=gsp&hydro_type=0&hsa_type=1

For the latest status of DROUGHT conditions across the region please visit and bookmark:

http://droughtmonitor.unl.edu

COUNTY TO REGION LEGEND... _____

_____ ..GEORGIA...

COUNTY REGION

Elbert GA Piedmont
Franklin GA Piedmont
Habersham GA NE Mountains/Foothills
Hart GA Piedmont
Rabun GA NE Mountains/Foothills
Stephens GA NE Mountains/Foothills

..NORTH CAROLINA...

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COUNTY	RE	GION (SUBREGION)
Alexander Avery	NC	
Buncombe	_	Central Mountains
Burke		Foothills (Northern)
Cabarrus		Piedmont (Southern)
Caldwell		Foothills (Northern)
Catawba		Foothills (Northern)
Cleveland	NC	Piedmont (Southern)
Davie	NC	Piedmont (Northwest)
Gaston	NC	Piedmont (Southern)
Graham	NC	Central Mountains
Haywood	NC	Central Mountains
Henderson	NC	Southern Mountains
Iredell	NC	Piedmont (Northwest)
Jackson North	NC	Central Mountains
Jackson South	NC	Southern Mountains
Lincoln	NC	Piedmont (Southern)
Macon	NC	Southern Mountains
Madison	NC	Central Mountains
McDowell	NC	Foothills (Northern)
Mecklenburg	NC	Piedmont (Southern)
Mitchell	NC	Northern Mountains
Polk	NC	Foothills (Southern)
Rowan	NC	Piedmont (Northwest)
Rutherford	NC	Foothills (Southern)
Swain	NC	
Transylvania	NC	Southern Mountains
Union	NC	Piedmont (Southern)
Yancey	NC	· · ·

..SOUTH CAROLINA...

SC	Piedmont (Lower)
SC	Piedmont (Northern)
SC	Piedmont (Northern)
SC	Piedmont (Eastern)
SC	Mountains/Foothills
SC	Piedmont (Lower)
SC	Piedmont (Lower)
SC	Mountains/Foothills
SC	Mountains/Foothills
SC	Mountains/Foothills
SC	Piedmont (Eastern)
SC	Piedmont (Eastern)
	SC SC SC SC SC SC SC SC

COUNTY REGION (SUBREGION)

MAINSTEM RIVER LEGEND...

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REGION		RIVER	
NC	Piedmont	Catawba South Fork Catawba Rocky	(Heavily Regulated) (Slightly Regulated)
		Yadkin	(Regulated)
NC	Foothills	Broad	(Regulated)
		Catawba	(Regulated)
	Nrn Mnts	NONE	
NC	Cntl Mnts	French Broad	(Slightly Regulated)
		Little Tennessee	(Heavily Regulated)
		Nantahala	(Heavily Regulated)
		Oconaluftee Pigeon	(Slightly Regulated)
		Tuckasegee	(Heavily Regulated)
NC	Srn Mnts	French Broad	(Slightly Regulated)
		Little Tennessee	(Heavily Regulated)
		Nantahala	(Regulated)
		Tuckasegee	(Regulated)
SC	Mnts	NO MAINSTEM RIVERS	
SC	Foothills	Chatooga	
		Enoree	
		Pacolet	(Slightly Regulated)
		Reedy	(Slightly Regulated)
		Saluda	(Regulated)
		Savannah	(Heavily Regulated)
		Toxaway/Seneca	(Heavily Regulated)
00	D	Tyger	(De and a to al)
SC	Piedmont	Broad	(Regulated)
		Pacolet	<pre>(Slightly Regulated) (Slightly Regulated)</pre>
		Reedy Saluda	
			(Regulated)
		Savannah	(Heavily Regulated)
C 7	NE Mnts/	Tyger	
GA	Foothills	Chatooga	(Hearrily Dogulated)
C^{Λ}	Piedmont	Tallulah/Tugaloo Broad	(Heavily Regulated)
GA	riedillonc	Savannah	(Heavily Regulated)
		Savallilali	(meavity Regulated)
===		=======	
QUESTIONS or COMMENTS			

This product has undergone several revisions and enhancements over the past couple of years. Additional enhancements are planned for future flood outlooks. Your feedback and recommendations are encouraged in order to ensure this product meets user needs. Please direct feedback, recommendations, questions, and comments to:

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